

Revised ~~12/13/28~~0104

~~2/6/01~~

Supersedes KM 64-426-01299

Dated ~~12/6/27/0199~~12/13/01

REQUIREMENTS FOR PROCESS-CONTROL TESTING
AND INSPECTION OF ASPHALT MIXTURES BY THE CONTRACTOR

1. SCOPE -

~~1.1.1.~~ This method lists the Contractor's process-control responsibilities for asphalt mixtures.

~~1.2.1.2.~~ Perform all testing for process-control and informational purposes ~~in accordance with~~ according to the applicable Kentucky Method (KM).

1.3. ~~_____ According to In accordance with~~ Subsection 402.02 of the Department's *Standard Specifications for Road and Bridge Construction*, provide a Superpave Plant Technologist (SPT) to perform the initial plant setup for each mixture, set the job-mix formula (JMF) at the mixing plant, and conduct all tests to verify that the plant is producing a mixture within the specified tolerances.

1.4. According to ~~In accordance with~~ Subsection 402.02 of the Department's *Standard Specifications*, provide a Superpave Mix Design Technologist (SMDT) to make all necessary changes in the JMF. The SPT may perform these changes under the direction of the SMDT. If deemed appropriate by the Department, repeat any inspection, process-control testing, sampling or sample preparation, etc., necessary to ensure that the mixture supplied meets the applicable requirements.

2. EQUIPMENT AND PROCEDURES - The equipment and procedures necessary to fulfill the requirements of this method are described in the following KM's and AASHTO standards:

KM 64-401 *Calibrating and Checking Cold-Feed Flow on Asphalt Mixing Plants*

KM 64-404 *Sampling Liquid Asphalt Materials*

KM 64-405 *Extraction of Binder From Asphalt Paving Mixtures*

KM 64-407 *Sieve Analysis of Aggregate From Asphalt Mixing Plants*

- KM 64-411 *Preparing Ingredient Materials for, and Performing, a Laboratory Mix Design of an Asphalt Mixture*
- KM 64-421 *Establishing the Job-Mix Formula of Asphalt Mixtures by the Contractor*
- KM 64-425 *Sampling Asphalt Mixtures*
- KM 64-433 *Wet-Sieve Analysis of Aggregates Used in Asphalt Mixtures*
- KM 64-434 *Determination of Moisture Content in Asphalt Mixtures (Rapid Field Test)*
- KM 64-435 *Method for Acceptance of Asphalt Mixtures by Mixture Property Analysis*
- KM 64-436 *Asphalt Binder Content Determination of Asphalt Mixtures by Plant Recordation*
- KM 64-437 *Determination of Asphalt Binder Content of Asphalt Mixtures Using the Nuclear Asphalt Content Gauge*
- KM 64-438 *Asphalt Binder Content Determination of Asphalt Mixtures Based on the Maximum Specific Gravity*
- KM 64-439 *Sampling Asphalt Mixtures From the Paving Site*
- KM 64-442 *Method for Coring and Determining Percent of Solid Density of In-Place, Compacted, Asphalt Mixture Courses*

~~[KM 64-601](#) *Sampling of Aggregates for Use as Highway Materials*~~

~~[KM 64-616](#) *Fineness Modulus of Fine Aggregate*~~

~~[KM 64-601](#) *Sampling of Aggregates for Use as Highway Materials*~~

~~[KM 64-616](#) *Fineness Modulus of Fine Aggregate*~~

KM 64-620 *Wet Sieve Analysis of Fine and Coarse Aggregate*

AASHTO

~~PP-28R 35~~ *Superpave Volumetric Design for Hot-Mix Asphalt (HMA)*

~~[AASHTO](#)~~

~~[T 2](#) *Sampling of Aggregates*~~

~~[AASHTO](#)~~

~~[T 27](#) *Sieve Analysis of Fine and Coarse Aggregates*~~

AASHTO

T 308 *Determining the Asphalt Binder Content of Hot-Mix Asphalt (HMA) by the Ignition Method*

~~[KM-426-01205](#)~~

3. PROCESS-CONTROL TESTING -

- 3.1. At the beginning of the construction season, submit a Quality Control Plan (QCP) to the appropriate District Materials Engineer (DME) for approval for each plant using the TC 64-418 form, *Contractor's Quality Control Plan/Checklist*. This document details sampling, process-control testing, inspection, and the anticipated frequencies of each.
- 3.2. If changes in an approved QCP become necessary or desirable, submit a revised plan for approval.
- 3.3. Furnish all necessary resources (equipment, personnel, etc.) to comply with the Department's *Standard Specifications*, other contract requirements, and approved QCP.
- 3.4. See Addendum 1 for a list of the SPT's duties that are to be performed routinely.

3.5. For all projects, perform the following tests and checks at the minimum frequencies listed below:

3.5.1. <u>All Superpave mixtures</u>	<u>Minimum frequencies</u>
Cold-feed checks (when using polish-resistant aggregate)	Two daily (a. m./p. m.)
Wet-sieve analysis	One during first subplot (setup period); one per lot thereafter
3.5.2. <u>Specialty mixtures</u>	<u>Minimum frequencies</u>
Open-Graded Friction Course (OGFC), Scratch Course, Sand Asphalt, Sand Seal Surface	
Cold-feed checks (when using polish-resistant aggregate)	Two daily (a. m./p. m.)
3.5.3. <u>All Mixtures</u>	<u>Minimum frequencies</u>
Temperature checks of asphalt mixture	Hourly
Temperature checks of performance- graded (PG) binder and aggregate	Four daily (two in a. m./p. m.). Retain PG binder and aggregate charts (when required) for a one-year period for review by the Department.

~~NOTE 1: When aggregate temperature is controlled by an approved automatic burner control system, the Department will not require a recording and non-recording aggregate thermometer.~~ NOTE 1: When aggregate temperature is controlled by an approved automatic burner control system, the Department will not require a recording and non-recording aggregate thermometer.

NOTE 21: For drum plants, in lieu of aggregate readings and charts, ~~read and record~~ monitor the temperature at the discharge chute from the drum.

4. RECOMMENDED PRACTICES -

- 4.1. Develop a process-control testing program in keeping with the specific considerations at each plant site.
- 4.2. In addition to the acceptance tests required in Subsection 402.03.02 of the Department's *Standard Specifications*, the Department recommends, but does not require, the following

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minimum process-control tests and frequencies:

- 4.2.1. Perform one gradation determination, corresponding to the volumetric analysis for acceptance, per subplot.
- 4.2.2. Perform one density determination for every 1200 sq. yd. of surface area of mainline pavement.

5. INSPECTION AND DOCUMENTATION -

- 5.1. In addition to process-control testing, perform the required plant and site inspection during production.
- 5.12. Document, and maintain a file of, all process-control tests and inspections. Document daily general observations, adjustments made to the mixture, and the results of all other inspections completed.
- 5.23. Keep, and update daily, control charts for all process-control, ~~and~~ acceptance, and verification test results.

6. ADDITIONAL TESTING BY THE DEPARTMENT - The Department reserves the right, when unusual circumstances arise or results of normal testing indicate the need for further testing, to sample at any point and to perform any additional or special tests necessary to determine if the material is suitable for its intended use.

APPROVED _____

Director

DIVISION OF MATERIALS

DATE _____

Revised ~~12/99~~01

Supersedes ~~KM 64-426-969~~

Dated ~~2/21/96~~12/27/99

ADDENDUM 1

DUTIES OF CONTRACTOR'S SPT

- ~~2~~1. Check with the DME to ensure the plant has been certified and accepted by the DME.
- ~~2~~2. Check the laboratory for the necessary equipment as required by the applicable specifications.
- ~~2~~3. Check the contract documents for the correct grade of PG binder and for specifications pertaining to the asphalt mixtures involved.
- ~~2~~4. Provide the JMF on an "Asphalt-Mixture-Design Results" form, or "MixPack" spreadsheet, from the Department at the asphalt plant field laboratory.
- ~~2~~5. Provide an approved QCP (TC 64-418) on file at the field laboratory.
- ~~2~~6. Perform visual inspection of all stockpiles to prevent contamination with other aggregates, dirt, and debris.
- ~~2~~7. Check the bill-of-lading that accompanies each transport of PG binder for the type of material, approval number, county, project number, and signature of the certifying agency and supplier.
- ~~2~~8. Maintain a file of all bills-of-lading for PG binder and tack material for a minimum of one year.
- ~~2~~9. Check the use and rate of silicone and anti-stripping additive when utilized in the asphalt mixture.
- ~~2~~10. ~~Assist the Department inspector in taking~~ When requested by Department personnel, obtain acceptance samples of the PG binder.
- ~~2~~11. Furnish two "hand-mixed" maximum specific gravity samples upon completion of the set-up period according to in accordance with KM 64-438.
- ~~2~~12. Perform visual inspection of the scale settings and mixing time.
- ~~2~~13. Check all truck beds to ensure all trucks have tarps and contain no contaminating material or unapproved release agent material prior to loading them with asphalt mixture.
- ~~2~~14. ~~14.~~ Fill out the Asphalt Mixtures Acceptance Workbook (AMAW) (Asphalt Mixtures Acceptance Workbook) ~~AMAW~~ completely (example copy attached).
- ~~2~~15. Complete all control charts documenting process-control, acceptance, and verification testing results daily.
Obtain samples in accordance with KM 64-425.
- ~~2~~ Obtain samples in accordance with KM 64-425.

- ~~16.~~ **R**Record the time, truck or ticket numbers, and temperature of the asphalt mixture from which the test samples are taken on the AMAW.
- ~~17.~~ Maintain familiarity with the KM's that pertain to asphalt quality control.
- ~~18.~~ Maintain familiarity with all applicable specifications that pertain to acceptance, process-control, or quality-control testing responsibilities.
- ~~19.~~ Keep a copy of the current SPT Qualification Course manual; KM manual; AASHTO *Standard Specifications for Transportation Materials and Methods of Sampling and Testing (Part H1, Specifications, and Part H2, Tests); AASHTO Provisional Standards; and Department's Standard Specifications* at the plant site at all times.

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Director

DIVISION OF MATERIALS

DATE ~~12/13/01~~ ~~12/28/04~~ ~~2/6/01~~ 12/28/04

Kentucky Method 64-426-025

Revised 12/13/01 ~~12/28/04~~

Supersedes KM 64-426-0102

Dated 2/6/01 ~~12/13/01~~

Revised 2/6/01

Supersedes KM 64-426-99

Dated 12/27/99

Attachments

[km426010125.doc](#)

PAY VALUE (%) PER LOT (Normally 3600 M Tons)
CONTROL AND ACCEPTANCE OF ASPHALT MIXTURES

KMIMS ID: 2005AM14-01555 Bid Item: A563 Lot #: 1 County: Blanton
 PIN #: CPES05200000117 Tons in Lot: 3600.00 Project #: FD05 136 0480 011-016
 Type Mix: Superpave 0.38 Type Aggregate: B Unit Price (\$): 41.43 Dates Paved: 6/28/05 06/29/05
 Producer & Location: Hot 'n Black Paving @ Kennedyville 6/30/05
 Approved Mix Design: 2004AM14-00333 Acceptance Method:
 Gradation Volumetrics Visual
 Density Options: Option A Option B Joint Density Applies
 Mix used for: Mainline ESAL Class: 3 Name: Cary Laird
 ID: 999-13-4444

Binder Content				Air Voids			VMA			
JMF % AC	Sublot % AC	Deviation from JMF	Pay Value (%)	Target (%)	Sublot % AV	Pay Value (%)	Min. % VMA	Sublot % VMA	Deviation from Min.	Pay Value (%)
5.7	5.6	-0.1	100.0	4.0	2.4	100.00	15.0	13.9	-1.1	100.0
5.7	6.0	0.3	100.0	4.0	2.9	99.00	15.0	14.6	-0.4	100.0
5.7	5.7	0.0	100.0	4.0	3.3	103.00	15.0	14.6	-0.4	100.0
5.7	5.5	-0.2	100.0	4.0	4.0	105.00	15.0	14.7	-0.3	100.0
Lot Average			100.00	Lot Average		101.75	Lot Average		100.00	

*For Sublot # 1 Only

Density	
Sublot Avg.	Pay Value (%)
Joint Density	101.3
Lane Density	100.00

Property	% Pay
Joint Density	15
Lane Density	30
% AC	5
% AV	25
% VMA	25

Final Pay Values And Adjustments	
Pavement Wedge Tons**	876.12
Final Pay Value Mainline (%)	100.63
For Lot #	1
Lot Tonnage Adjustment	17.024
Lot Pay Adjustment (\$)	705.315

** Only necessary when placed Monolithically with Mainline

Aggregate Information				
Aggr. Prod. Name	Aggr. Code #	Matl. Type & Size	Matl. Code #	%
Hard & Brittle Stone Company	P062901	Dolomite # 8's	1002	20
Green Valley Rock	P073501	Limestone # 8's	1108	20
Green Valley Rock	P073501	Limestone Sand	1101	40
Muddy River Sand, Inc.	P057202	Natural Sand	1101	20

Pay Values for Acceptance by Gradation and Asphalt Binder Content					Sublot Verified		Verification Results		
Sublot	Target JMF or FM	Test Result	Deviation	Pay Value	<input checked="" type="radio"/> Sublot # 1	<input type="radio"/> Sublot # 2	Test	Results	Deviation
1					<input type="radio"/> Sublot # 3	<input type="radio"/> Sublot # 4	% AC	5.6	0.1
2					<input type="checkbox"/> Same Equipment		% AV	1.5	-0.9
3							% VMA	13.5	-0.4
4									
Lot Average									
PG-Binder Info.									
Sublot # 1	Sublot # 2	Sublot # 3	Sublot # 4		<input type="radio"/> Sublot # 1	<input type="radio"/> Sublot # 2	Test	Results	Deviation
PG-Binder Lot #'s	QWK3520522	ROK3520628	ROK3062100	QWK3062342	<input type="radio"/> Sublot # 3	<input checked="" type="radio"/> Sublot # 4	% AC	5.7	0.2
Tack Oil Lot #'s	ROK3463600	ROK3463600	ROK3463600	ROK3463600	<input checked="" type="checkbox"/> Same Equipment		% AV	4.2	0.2
PG-Grade					Sublot Verified By				
Manufacturer	% & Type Additive (if used)				Name	ID #			
PG 64-22	P153801	0.5 % Stick-2-It Plus			Willie Carrier	640-00-1313			

KMIMS ID#: 2005AM14-01555
 PIN #: CPES05200000117
 Type Mixture: Superpave 0.38

Inspectors ID #: 640-00-1313
 Inspectors Name: Willie Carrier
 Producer & Location: Hot 'n Black Paving @ Kennedyville

CORE DENSITIES									
Core Number	Station #/ Offset/ Coarse #	MSG of Sublot	Core Wt. In Air (g)	Core Wt. In Water (g)	Core Wt. SSD (g)	Bulk Sp. Gravity	Core Density (kg/m ³)	% Solid Density (%)	Pay Value (%)
1-1-A	1+23 6' R	2.477	708.1	415.8	727.0	2.275	2275	91.9	95
1-1-B	3+47 4' R		711.6	418.3	725.9	2.313	2313	93.4	100
1-1-C	4+12 3' L		720.1	422.1	730.3	2.336	2336	94.3	105
1-1-D	6+78 7' R		701.2	419.0	719.8	2.331	2331	94.1	105
Sublot Average									100.0
1-2-A	6+83 1' R	2.481	725.8	410.0	729.9	2.269	2269	91.5	95
1-2-B	8+20 6' L		732.1	421.3	740.2	2.296	2296	92.6	100
1-2-C	9+31 1' L		703.6	418.5	714.7	2.375	2375	95.8	105
1-2-D	10+11 8' L		714.5	426.1	733.6	2.324	2324	93.7	100
Sublot Average									100.0
1-3-A	11+39 2' R	2.483	692.4	408.2	710.7	2.289	2289	92.2	100
1-3-B	13+00 3' L		713.5	414.5	722.6	2.316	2316	93.3	100
1-3-C	13+95 3' R		729.4	420.9	739.2	2.292	2292	92.3	100
1-3-D	15+02 7' R		710.1	409.3	715.8	2.317	2317	93.3	100
Sublot Average									100.0
1-4-A	16+77 1' L	2.493	713.6	411.2	720.6	2.306	2306	92.5	100
1-4-B	17+23 10' L		680.5	399.6	693.6	2.315	2315	92.8	100
1-4-C	18+08 3' L		720.0	413.8	730.0	2.277	2277	91.3	95
1-4-D	18+75 5' L		693.5	411.7	705.7	2.359	2359	94.6	105
Sublot Average									100.0
Lot Average									100.00

Joint Cores									
1-J1-A	2+22 1' R	2.477	728.6	418.3	742.2	2.249	2249	90.8	100
1-J1-B	2+22 1' R		677.5	389.6	694.8	2.220	2220	89.6	100

KMIMS ID#: 2005AM14-01555 Producer & Location: Hot 'n Black Paving @ Kennedyville
 PIN #: CPES05200000117
 Type Mixture: Superpave 0.38

Gyrations	
@ N _{des}	100

Sublot #: 1 Inspectors ID #: 640-00-1313 Inspectors Name: Willie Carrier

Sample #	% AC (Mix)	Weight (g)			Bulk Vol.	BSG	Unit Wt.	Max Spec Gravity	% Voids	% Eff. AC	% VMA	% VFA	D/A Ratio
		(Air)	(Water)	(SSD)									
1		4812.1	2834.7	4815.4	1980.7	2.429							
2		4808.4	2830.1	4810.0	1979.9	2.429							
Average	5.6					2.429	2429	2.465	1.5	4.6	13.5	89.1	1.4

Sublot #: 4 Inspectors ID #: 640-00-1313 Inspectors Name: Willie Carrier

Sample #	% AC (Mix)	Weight (g)			Bulk Vol.	BSG	Unit Wt.	Max Spec Gravity	% Voids	% Eff. AC	% VMA	% VFA	D/A Ratio
		(Air)	(Water)	(SSD)									
1		4820.7	2820.6	4839.2	2018.6	2.388							
2		4811.3	2811.7	4831.1	2019.4	2.383							
Average	5.7					2.385	2385	2.490	4.2	4.6	15.1	72.1	0.7

	Sublot #1a	Sublot #1b	Sublot #4a	Sublot #4b
Wt. of Mix	1555.9	1528.8	1521.3	1550.6
Calibration	1401.2	1401.2	1401.2	1401.2
Wt. of Mix + Calibrat.	2957.1	2930.0	2922.5	2951.8
Final Wt.	2326.4	2309.5	2311.4	2329.4
Absorbed Water				
MSG	2.467	2.464	2.489	2.491
Avg. =	2.465		2.490	

Binder Content Verif. Sublot # 1		Binder Content Verif. Sublot # 4	
Printed Ticket		Printed Ticket	
As Tested % AC:	5.7	As Tested % AC:	5.7
Act. % AC for Verif.:	5.6	Act. % AC for Verif.:	5.7
% AC by Back-Calc. =	6.5	% AC by Back-Calc. =	5.8

Sieve Size	Verif. for Sublot #1			Verif. for Sublot #4		
	Grams Retained	Percent Retained	Percent Passing	Grams Retained	Percent Retained	Percent Passing
2"						
1 1/2"						
1"						
3/4"						
1/2"	0.0	0.0	100.0	0.0	0.0	100.0
3/8"	136.0	3.8	96.2	112.7	3.4	96.6
1/4"						
# 4	455.8	12.6	87.4	408.3	12.2	87.8
# 8	2109.7	58.3	41.7	1986.4	59.5	40.5
# 16	2563.2	70.8	29.2	2373.3	71.0	29.0
# 30	2874.8	79.4	20.6	2599.9	77.8	22.2
# 50	3018.6	83.3	16.7	2837.7	84.9	15.1
# 100						
# 200	3432.5	94.8	5.2	3131.4	93.7	6.3
PAN						
Total	3621.8			3341.0		

Moisture Content of Mixture		
	Sublot #1	Sublot #4
Weight of Pan and Mixture before Drying	3443.0	3218.3
Weight of Pan and Mixture after Drying	3441.6	3217.9
Weight of Pan	1100.7	1100.7
% Moisture in Mix	0.1	0.0

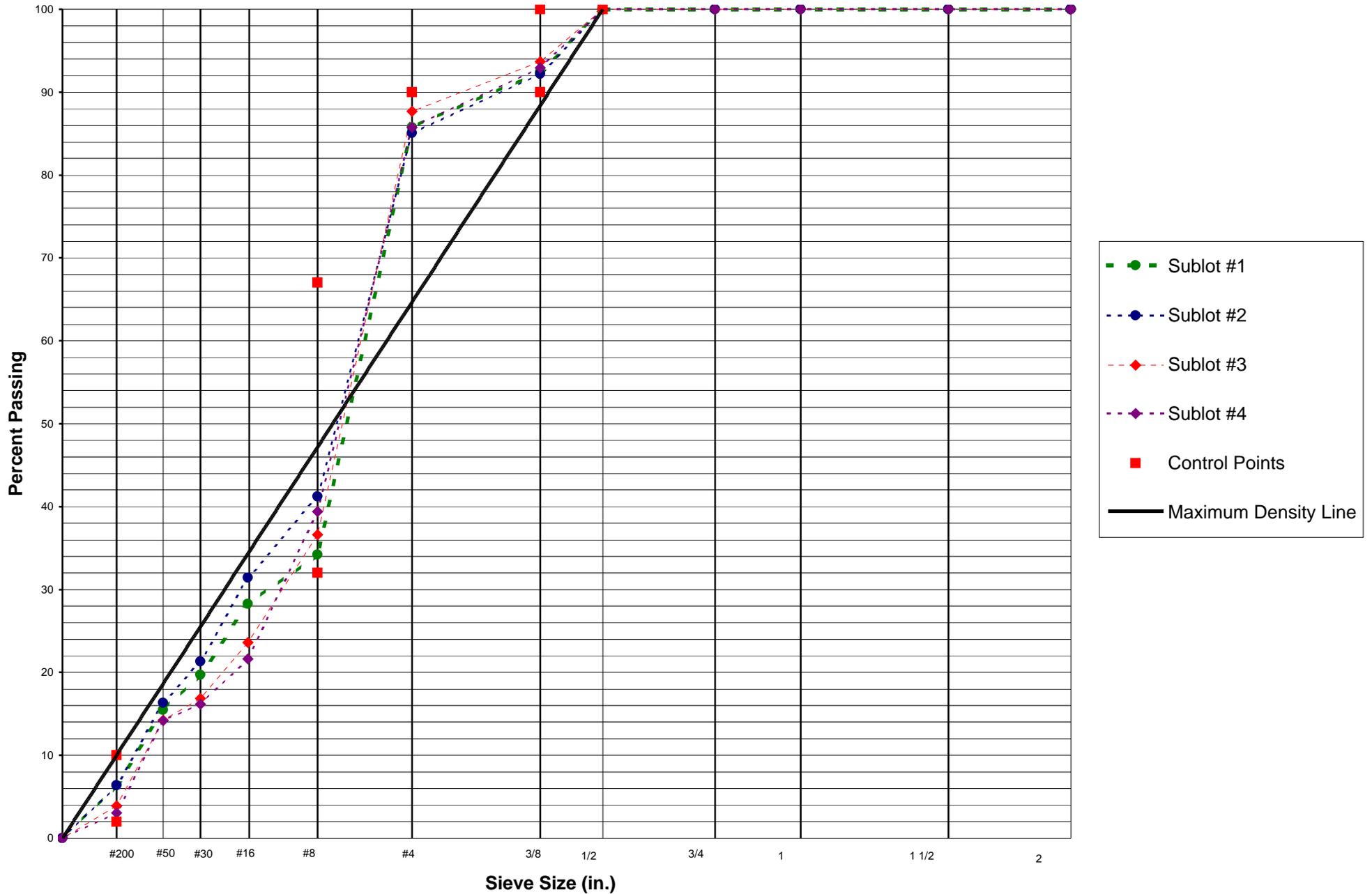
KMIMS ID Number: 2005AM14-01555
 PIN Number: CPES05200000117
 Type of Mixture: Superpave 0.38

Inspectors ID # : _____
 Inspectors Name: _____
 Producer & Location: Hot 'n Black Paving @ Kennedyville

Sieve Size	Date Tested: 06/28/05			Date Tested: 06/29/05			Date Tested: 06/30/05			Date Tested: 06/30/05		
	SUBLOT # 1			SUBLOT # 2			SUBLOT # 3			SUBLOT # 4		
	Grams Retained	Percent Retained	Percent Passing	Grams Retained	Percent Retained	Percent Passing	Grams Retained	Percent Retained	Percent Passing	Grams Retained	Percent Retained	Percent Passing
2 "												
1 1/2 "												
1 "												
3/4 "												
1/2 "	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0
3/8 "	267.4	7.5	92.5	298.7	7.8	92.2	220.0	6.3	93.7	248.3	7.1	92.9
1/4 "												
# 4	504.9	14.2	85.8	571.5	15.0	85.0	427.5	12.3	87.7	499.7	14.2	85.8
# 8	2334.3	65.8	34.2	2245.9	58.8	41.2	2201.4	63.4	36.6	2127.3	60.6	39.4
# 16	2543.8	71.7	28.3	2621.0	68.6	31.4	2654.7	76.4	23.6	2751.6	78.4	21.6
# 30	2847.8	80.3	19.7	3006.6	78.7	21.3	2888.4	83.1	16.9	2943.9	83.9	16.1
# 50	2998.8	84.5	15.5	3196.3	83.7	16.3	2978.9	85.7	14.3	3012.2	85.8	14.2
# 100												
# 200	3321.6	93.6	6.4	3577.8	93.6	6.4	3338.9	96.1	3.9	3404.4	97.0	3.0
Pan												
Total	3547.2			3820.9			3474.3			3510.6		

Printed Ticket	Extraction	Ignition Furnace	NACG
	Wt. of Bowl: 2388.6 Wt. of Bowl & Sample: 5821.5 Pad Gain: 12.4 Wt. of Dry Agg.: 3210.3 As Tested % AC: 5.7 Act. % AC for Accept.: 5.6 % AC by Back-Calc. = 6.2	As Tested % AC: 5.8 Act. % AC for Accept.: 5.7 % AC by Back-Calc. = 6.0	As Tested % AC: 5.6 Act. % AC for Accept.: 5.5 % AC by Back-Calc. = 5.7

Superpave Mixtures (Gradation Analysis)



COMMENTS

Please include any comments concerning Volumetric Properties or Densities for the subject mixture.

A large, solid yellow rectangular area that occupies the majority of the page below the header. It is intended for the user to provide comments on volumetric properties or densities of a subject mixture.

P153801 BP (Amoco) - Whiting, IN
P151702 Asphalt Materials - Elizabethtown, KY
P151701 Asphalt Materials - Indianapolis, IN
P150501 Citgo Asphalt - Bristol, VA
P151203 Citgo Asphalt - Lexington, KY
P153602 Citgo Asphalt - Paulsboro, NJ
P153603 Citgo Asphalt - Savannah, GA
P151201 Conoco Phillips - Cincinnati, OH
P151202 Volunteer Asphalt - Knoxville, TN
P152201 Ergon - Memphis, TN
P152202 Ergon - Nashville, TN
P155001 Greater Cincinnati Asphalt Terminal - Covington, KY
P151801 Hinkle Asphalt - Avon, KY
P151007 Koch Asphalt- Memphis, TN
P151003 Koch Asphalt- Parsons, TN
P151005 Koch Asphalt- Nashville, TN
P150101 Marathon Ashland Petroleum - Ashland, KY
P150301 Marathon Ashland Petroleum - Catlettsburg, KY (Big Sandy)
P151902 Marathon Ashland Petroleum - Cincinnati, OH
P151305 Marathon Ashland Petroleum - Knoxville, TN
P151303 Marathon Ashland Petroleum - Kuttawa, KY
P150104 Marathon Ashland Petroleum - Lexington, KY
P151901 Marathon Ashland Petroleum - Louisville, KY (Cane Run Road)
P151903 Marathon Ashland Petroleum - Mt. Vernon, IN
P151304 Marathon Ashland Petroleum - Nashville, TN
P150601 Marathon Ashland Petroleum - North Bend, OH
P151904 Marathon Ashland Petroleum - Memphis, TN
P151401 Midwest Terminal - Paducah, KY
P155101 Polymer Asphalt Products
P153201 Seneca Petroleum
P151802 Tanco Clark Maritime - Jeffersonville, IN
P154901 Terry Asphalt - Hamilton, OH
P151204 Trumbul (Phillips) - North Bend, OH
P153601 Unique Paving - Cleveland, OH
P151501 Vulcan Materials - Knoxville, TN

**PAY VALUE (%) PER LOT (Normally 3600 M Tons)
CONTROL AND ACCEPTANCE OF ASPHALT MIXTURES**

KMIMS ID: 2005AM14-01555 Bid Item: A563 Lot #: 1 County: Blanton
 PIN #: CPES05200000117 Tons in Lot: 3600.00 Project #: FD05 136 0480 011-016
 Type Mix: Superpave 0.38 Type Aggregate: B Unit Price (\$): 41.43 Dates Paved: 6/28/05 06/29/05
 Producer & Location: Hot 'n Black Paving @ Kennedyville 6/30/05
 Approved Mix Design: 2004AM14-00333 Acceptance Method:
 Gradation Volumetrics Visual
 Density Options: Option A Option B Joint Density Applies
 Mix used for: Mainline ESAL Class: 3 Name: Cary Laird
 ID: 999-13-4444

Binder Content				Air Voids			VMA			
JMF % AC	Sublot % AC	Deviation from JMF	Pay Value (%)	Target (%)	Sublot % AV	Pay Value (%)	Min. % VMA	Sublot % VMA	Deviation from Min.	Pay Value (%)
5.7	5.6	-0.1	100.0	4.0	2.4	100.00	15.0	13.9	-1.1	100.0
5.7	6.0	0.3	100.0	4.0	2.9	99.00	15.0	14.6	-0.4	100.0
5.7	5.7	0.0	100.0	4.0	3.3	103.00	15.0	14.6	-0.4	100.0
5.7	5.5	-0.2	100.0	4.0	4.0	105.00	15.0	14.7	-0.3	100.0
Lot Average			100.00	Lot Average		101.75	Lot Average		100.00	

*For Sublot # 1 Only

Density	
Sublot Avg.	Pay Value (%)
Joint Density	101.3
Lane Density	100.00

Property	% Pay
Joint Density	15
Lane Density	30
% AC	5
% AV	25
% VMA	25

Final Pay Values And Adjustments	
Pavement Wedge Tons**	876.12
Final Pay Value Mainline (%)	100.63
For Lot #	1
Lot Tonnage Adjustment	17.024
Lot Pay Adjustment (\$)	705.315

** Only necessary when placed Monolithically with Mainline

Aggregate Information				
Aggr. Prod. Name	Aggr. Code #	Matl. Type & Size	Matl. Code #	%
Hard & Brittle Stone Company	P062901	Dolomite # 8's	1002	20
Green Valley Rock	P073501	Limestone # 8's	1108	20
Green Valley Rock	P073501	Limestone Sand	1101	40
Muddy River Sand, Inc.	P057202	Natural Sand	1101	20

Pay Values for Acceptance by Gradation and Asphalt Binder Content					Sublot Verified		Verification Results		
Sublot	Target JMF or FM	Test Result	Deviation	Pay Value	<input checked="" type="radio"/> Sublot # 1	<input type="radio"/> Sublot # 2	Test	Results	Deviation
1					<input type="radio"/> Sublot # 3	<input type="radio"/> Sublot # 4	% AC	5.6	0.1
2					<input type="checkbox"/> Same Equipment		% AV	1.5	-0.9
3							% VMA	13.5	-0.4
4									
Lot Average									
PG-Binder Info.									
Sublot # 1	Sublot # 2	Sublot # 3	Sublot # 4		<input type="radio"/> Sublot # 1	<input type="radio"/> Sublot # 2	Test	Results	Deviation
PG-Binder Lot #'s	QWK3520522	ROK3520628	ROK3062100	QWK3062342	<input type="radio"/> Sublot # 3	<input checked="" type="radio"/> Sublot # 4	% AC	5.7	0.2
Tack Oil Lot #'s	ROK3463600	ROK3463600	ROK3463600	ROK3463600	<input checked="" type="checkbox"/> Same Equipment		% AV	4.2	0.2
PG-Grade					Sublot Verified By				
Manufacturer	% & Type Additive (if used)				Name	ID #			
PG 64-22	P153801	0.5 % Stick-2-It Plus			Willie Carrier	640-00-1313			

KMIMS ID#: 2005AM14-01555
 PIN #: CPES05200000117
 Type Mixture: Superpave 0.38

Inspectors ID #: 640-00-1313
 Inspectors Name: Willie Carrier
 Producer & Location: Hot 'n Black Paving @ Kennedyville

CORE DENSITIES									
Core Number	Station #/ Offset/ Coarse #	MSG of Sublot	Core Wt. In Air (g)	Core Wt. In Water (g)	Core Wt. SSD (g)	Bulk Sp. Gravity	Core Density (kg/m ³)	% Solid Density (%)	Pay Value (%)
1-1-A	1+23 6' R	2.477	708.1	415.8	727.0	2.275	2275	91.9	95
1-1-B	3+47 4' R		711.6	418.3	725.9	2.313	2313	93.4	100
1-1-C	4+12 3' L		720.1	422.1	730.3	2.336	2336	94.3	105
1-1-D	6+78 7' R		701.2	419.0	719.8	2.331	2331	94.1	105
Sublot Average									100.0
1-2-A	6+83 1' R	2.481	725.8	410.0	729.9	2.269	2269	91.5	95
1-2-B	8+20 6' L		732.1	421.3	740.2	2.296	2296	92.6	100
1-2-C	9+31 1' L		703.6	418.5	714.7	2.375	2375	95.8	105
1-2-D	10+11 8' L		714.5	426.1	733.6	2.324	2324	93.7	100
Sublot Average									100.0
1-3-A	11+39 2' R	2.483	692.4	408.2	710.7	2.289	2289	92.2	100
1-3-B	13+00 3' L		713.5	414.5	722.6	2.316	2316	93.3	100
1-3-C	13+95 3' R		729.4	420.9	739.2	2.292	2292	92.3	100
1-3-D	15+02 7' R		710.1	409.3	715.8	2.317	2317	93.3	100
Sublot Average									100.0
1-4-A	16+77 1' L	2.493	713.6	411.2	720.6	2.306	2306	92.5	100
1-4-B	17+23 10' L		680.5	399.6	693.6	2.315	2315	92.8	100
1-4-C	18+08 3' L		720.0	413.8	730.0	2.277	2277	91.3	95
1-4-D	18+75 5' L		693.5	411.7	705.7	2.359	2359	94.6	105
Sublot Average									100.0
Lot Average									100.00

Joint Cores									
1-J1-A	2+22 1' R	2.477	728.6	418.3	742.2	2.249	2249	90.8	100
1-J1-B	2+22 1' R		677.5	389.6	694.8	2.220	2220	89.6	100

KMIMS ID#: 2005AM14-01555 Producer & Location: Hot 'n Black Paving @ Kennedyville
 PIN #: CPES05200000117
 Type Mixture: Superpave 0.38

Gyrations	
@ N _{des}	100

Sublot #: 1 Inspectors ID #: 640-00-1313 Inspectors Name: Willie Carrier

Sample #	% AC (Mix)	Weight (g)			Bulk Vol.	BSG	Unit Wt.	Max Spec Gravity	% Voids	% Eff. AC	% VMA	% VFA	D/A Ratio
		(Air)	(Water)	(SSD)									
1		4812.1	2834.7	4815.4	1980.7	2.429							
2		4808.4	2830.1	4810.0	1979.9	2.429							
Average	5.6					2.429	2429	2.465	1.5	4.6	13.5	89.1	1.4

Sublot #: 4 Inspectors ID #: 640-00-1313 Inspectors Name: Willie Carrier

Sample #	% AC (Mix)	Weight (g)			Bulk Vol.	BSG	Unit Wt.	Max Spec Gravity	% Voids	% Eff. AC	% VMA	% VFA	D/A Ratio
		(Air)	(Water)	(SSD)									
1		4820.7	2820.6	4839.2	2018.6	2.388							
2		4811.3	2811.7	4831.1	2019.4	2.383							
Average	5.7					2.385	2385	2.490	4.2	4.6	15.1	72.1	0.7

	Sublot #1a	Sublot #1b	Sublot #4a	Sublot #4b
Wt. of Mix	1555.9	1528.8	1521.3	1550.6
Calibration	1401.2	1401.2	1401.2	1401.2
Wt. of Mix + Calibrat.	2957.1	2930.0	2922.5	2951.8
Final Wt.	2326.4	2309.5	2311.4	2329.4
Absorbed Water				
MSG	2.467	2.464	2.489	2.491
Avg. =	2.465		2.490	

Binder Content Verif. Sublot # 1		Binder Content Verif. Sublot # 4	
Printed Ticket	▼	Printed Ticket	▼
As Tested % AC:	5.7	As Tested % AC:	5.7
Act. % AC for Verif.:	5.6	Act. % AC for Verif.:	5.7
% AC by Back-Calc. =	6.5	% AC by Back-Calc. =	5.8

Sieve Size	Verif. for Sublot #1			Verif. for Sublot #4		
	Grams Retained	Percent Retained	Percent Passing	Grams Retained	Percent Retained	Percent Passing
2"						
1 1/2"						
1"						
3/4"						
1/2"	0.0	0.0	100.0	0.0	0.0	100.0
3/8"	136.0	3.8	96.2	112.7	3.4	96.6
1/4"						
# 4	455.8	12.6	87.4	408.3	12.2	87.8
# 8	2109.7	58.3	41.7	1986.4	59.5	40.5
# 16	2563.2	70.8	29.2	2373.3	71.0	29.0
# 30	2874.8	79.4	20.6	2599.9	77.8	22.2
# 50	3018.6	83.3	16.7	2837.7	84.9	15.1
# 100						
# 200	3432.5	94.8	5.2	3131.4	93.7	6.3
PAN						
Total	3621.8			3341.0		

Moisture Content of Mixture		
	Sublot #1	Sublot #4
Weight of Pan and Mixture before Drying	3443.0	3218.3
Weight of Pan and Mixture after Drying	3441.6	3217.9
Weight of Pan	1100.7	1100.7
% Moisture in Mix	0.1	0.0

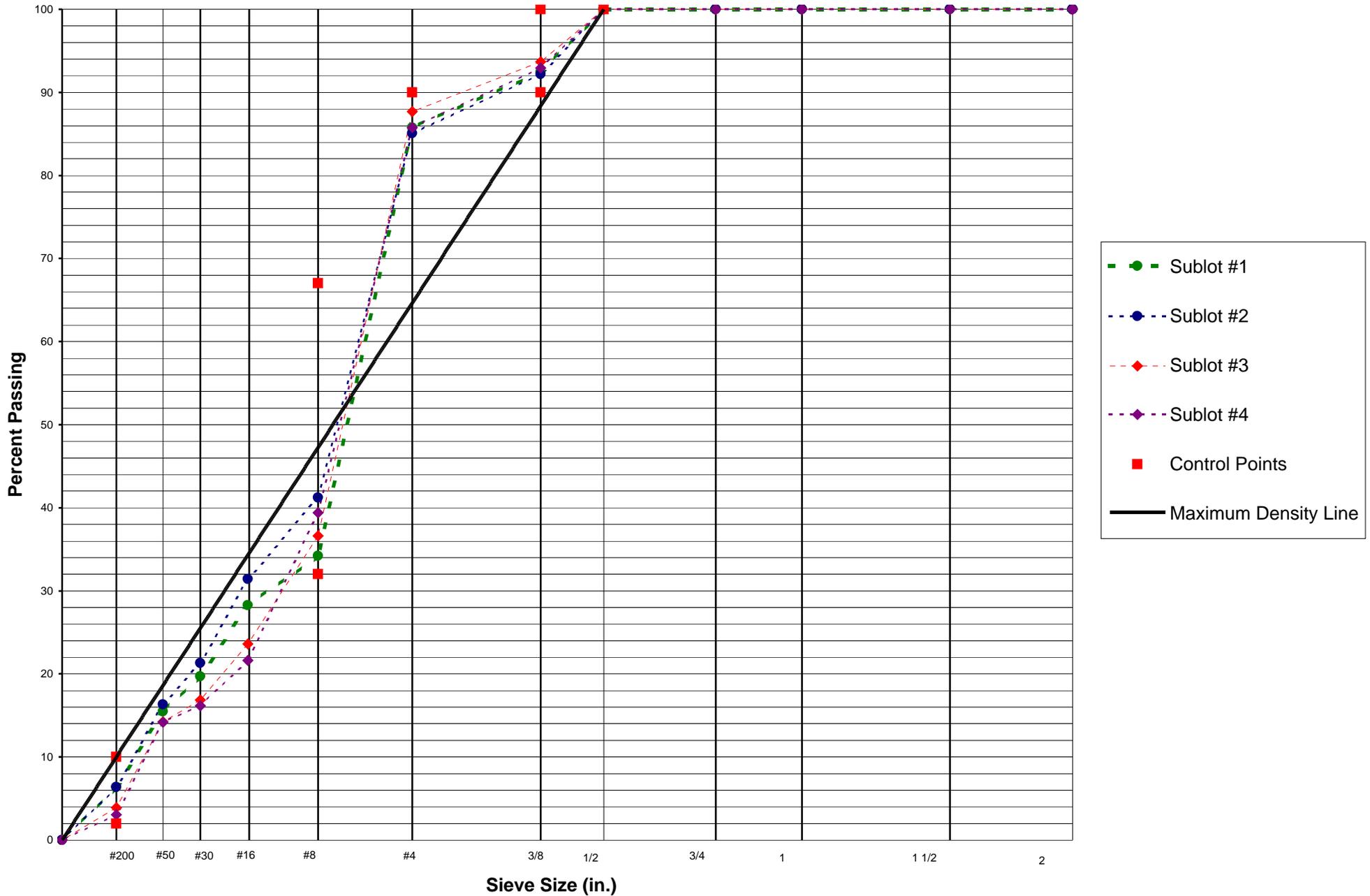
KMIMS ID Number: 2005AM14-01555
 PIN Number: CPES05200000117
 Type of Mixture: Superpave 0.38

Inspectors ID # : _____
 Inspectors Name: _____
 Producer & Location: Hot 'n Black Paving @ Kennedyville

	Date Tested: 06/28/05			Date Tested: 06/29/05			Date Tested: 06/30/05			Date Tested: 06/30/05		
	SUBLOT # 1			SUBLOT # 2			SUBLOT # 3			SUBLOT # 4		
Sieve Size	Grams Retained	Percent Retained	Percent Passing	Grams Retained	Percent Retained	Percent Passing	Grams Retained	Percent Retained	Percent Passing	Grams Retained	Percent Retained	Percent Passing
2 "												
1 1/2 "												
1 "												
3/4 "												
1/2 "	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0
3/8 "	267.4	7.5	92.5	298.7	7.8	92.2	220.0	6.3	93.7	248.3	7.1	92.9
1/4 "												
# 4	504.9	14.2	85.8	571.5	15.0	85.0	427.5	12.3	87.7	499.7	14.2	85.8
# 8	2334.3	65.8	34.2	2245.9	58.8	41.2	2201.4	63.4	36.6	2127.3	60.6	39.4
# 16	2543.8	71.7	28.3	2621.0	68.6	31.4	2654.7	76.4	23.6	2751.6	78.4	21.6
# 30	2847.8	80.3	19.7	3006.6	78.7	21.3	2888.4	83.1	16.9	2943.9	83.9	16.1
# 50	2998.8	84.5	15.5	3196.3	83.7	16.3	2978.9	85.7	14.3	3012.2	85.8	14.2
# 100												
# 200	3321.6	93.6	6.4	3577.8	93.6	6.4	3338.9	96.1	3.9	3404.4	97.0	3.0
Pan												
Total	3547.2			3820.9			3474.3			3510.6		

Printed Ticket	Extraction	Ignition Furnace	NACG
	Wt. of Bowl: 2388.6		
	Wt. of Bowl & Sample: 5821.5		
	Pad Gain: 12.4		
	Wt. of Dry Agg.: 3210.3		
As Tested % AC: 5.7	As Tested % AC: 6.1	As Tested % AC: 5.8	As Tested % AC: 5.6
Act. % AC for Accept.: 5.6	Act. % AC for Accept.: 6.0	Act. % AC for Accept.: 5.7	Act. % AC for Accept.: 5.5
% AC by Back-Calc. = 6.2	% AC by Back-Calc. = 6.0	% AC by Back-Calc. = 6.0	% AC by Back-Calc. = 5.7

Superpave Mixtures (Gradation Analysis)



COMMENTS

Please include any comments concerning Volumetric Properties or Densities for the subject mixture.

A large, solid yellow rectangular area that occupies the majority of the page below the header. It is intended for the user to provide comments on volumetric properties or densities of a subject mixture.

P153801 BP (Amoco) - Whiting, IN
P151702 Asphalt Materials - Elizabethtown, KY
P151701 Asphalt Materials - Indianapolis, IN
P150501 Citgo Asphalt - Bristol, VA
P151203 Citgo Asphalt - Lexington, KY
P153602 Citgo Asphalt - Paulsboro, NJ
P153603 Citgo Asphalt - Savannah, GA
P151201 Conoco Phillips - Cincinnati, OH
P151202 Volunteer Asphalt - Knoxville, TN
P152201 Ergon - Memphis, TN
P152202 Ergon - Nashville, TN
P155001 Greater Cincinnati Asphalt Terminal - Covington, KY
P151801 Hinkle Asphalt - Avon, KY
P151007 Koch Asphalt- Memphis, TN
P151003 Koch Asphalt- Parsons, TN
P151005 Koch Asphalt- Nashville, TN
P150101 Marathon Ashland Petroleum - Ashland, KY
P150301 Marathon Ashland Petroleum - Catlettsburg, KY (Big Sandy)
P151902 Marathon Ashland Petroleum - Cincinnati, OH
P151305 Marathon Ashland Petroleum - Knoxville, TN
P151303 Marathon Ashland Petroleum - Kuttawa, KY
P150104 Marathon Ashland Petroleum - Lexington, KY
P151901 Marathon Ashland Petroleum - Louisville, KY (Cane Run Road)
P151903 Marathon Ashland Petroleum - Mt. Vernon, IN
P151304 Marathon Ashland Petroleum - Nashville, TN
P150601 Marathon Ashland Petroleum - North Bend, OH
P151904 Marathon Ashland Petroleum - Memphis, TN
P151401 Midwest Terminal - Paducah, KY
P155101 Polymer Asphalt Products
P153201 Seneca Petroleum
P151802 Tanco Clark Maritime - Jeffersonville, IN
P154901 Terry Asphalt - Hamilton, OH
P151204 Trumbul (Phillips) - North Bend, OH
P153601 Unique Paving - Cleveland, OH
P151501 Vulcan Materials - Knoxville, TN